

II. Claim Rejections -- 35 U.S.C. § 103(a)

Claims 29-38 stand rejected under § 103(a) as allegedly being unpatentable over Morita in view of Perkins.

Claims 29 and 34

Claim 29 recites, inter alia, "an injection mold comprising a mold main body including a fixed mold and a movable mold and a plurality of slide cores" (see also claim 34). The Examiner alleges that Morita discloses the features of claims 29 and 34 (Morita: col. 1, lines 10-12 and 55; Figs. 2-3), except the features of "said mold main body and said slide cores respectively include mold surfaces, at least a portion of each of said mold surfaces being a coarse surface" and "wherein each sliding contact surface between the slide cores is formed as a smooth surface", as recited in claim 29 (see also claim 34).

The Examiner alleges that "in regards to the coarse work surface, this shape of the mold surface for producing a product is merely a change in shape", and it would have been obvious to one of ordinary skill in the art to modify Morita to change its surface to a coarse surface because it is a design choice for the shape of the product (Office Action, page 3). Applicants respectfully disagree. For example, the recited "coarse surface" and "smooth surface" of the injection mold solve known problems, *e.g.*, reducing wear and thereby preventing leakage (*see* Applicants' Specification at page 26, line 27 to page 27, line 14).

Furthermore, in a conventional slide core, a coarse surface forming process is applied on the slide core after a smooth surface forming process, wherein burrs can occur at a boundary portion between a coarse surface and a smooth surface. Conversely, Applicants' approach includes applying a smooth surface forming process on the slide core after a coarse surface

forming processing has been applied to the slide core, wherein the occurrence of burrs at a boundary portion between a coarse surface and a smooth surface is avoided.

Furthermore, to make up for the other acknowledged deficiencies of Morita, the Examiner relies on Perkins. In particular, the Examiner alleges that Perkins teaches "the contact between surfaces of a mold being smooth" at col. 2, lines 6-8. Applicants respectfully disagree.

For example, Perkins describes molding battery containers, the walls of which have thin, resilient, integrally molded ribs projecting at acute angles into the cell compartments defined by the walls (Perkins: col. 1, lines 8-11). These ribs serve to firmly retain and protect the electrochemical innards of the battery (Perkins: col. 1, lines 11-16). In this regard, Perkins recognizes that it is difficult to accurately machine thin, angled slots (for the ribs) into a mold core using conventional tools (Perkins: col. 2, lines 1-21). Perkins also recognizes that it is difficult to polish the surfaces of such slots sufficiently to reduce drag on the ribs during container ejection (Id.).

Additionally, such slots/cavities (see, e.g., Perkins: Figs. 8 and 9, recesses 32) do not correspond to "a sliding contact surface between the slide cores", as recited in claim 29 (see also claim 34). The recesses 32 themselves are formed in diverging faces 88 of the ejector bars 30 (Perkins: Figs. 8 and 9). Indeed, the ejection means employing the ejector bars 30 (see, e.g., Perkins: claim 1), are not slide cores.

Further still, the Examiner fails to provide a reasonable suggestion or motivation for modifying Morita in light of Perkins. For example, as noted above, Perkins relates to molding battery containers, the walls of which have thin, resilient, integrally molded ribs projecting at acute angles into the cell compartments defined by the walls in order to firmly retain and protect

the electrochemical innards of the battery (Perkins: col. 1, lines 8-16). In particular, Perkins aims to overcome noted drawbacks in the conventional approaches to molding battery containers having such ribs (Perkins: col. 2, lines 1-21).

Conversely, Morita relates to molding multi-color magnetic cassette tapes (Morita: Abstract). The cassette tapes of Morita do not include any thin, resilient, angled ribs. Consequently, a mold used in Morita (see, e.g., Morita: Figs. 2 and 3) is fundamentally different from a mold used in Perkins (see, e.g., Perkins: Figs. 3-7).

Therefore the Examiner fails to provide a reasonable suggestion or motivation, from the references themselves or the knowledge available to one of ordinary skill in the art at the time of Applicants' invention and without employing impermissible hindsight, for modifying Morita to include the polished (separately before assembly) ejector bars and mortises of Perkins (see Perkins: col. 2, lines 46-61), which are used in making the aforementioned ribs.

For at least the exemplary reasons set forth above, claims 29 and 34 are patentable over a reasonable combination, if any, of Morita and Perkins.

Claims 30-33 and 35-38

Consequently, claims 30-33 and 35-38 are patentable at least by virtue of their dependency.

III. Formal Matters

Priority

The Examiner acknowledges Applicants' claim for foreign priority under 35 U.S.C. § 119, including copies of the priority documents received from the International Bureau.

Information Disclosure Statement

The Examiner provides a signed and initialed copy of the Form PTO-1449 submitted with the IDS filed on December 12, 2000, thereby indicating consideration of the references cited therein.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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CUSTOMER NUMBER

Date: September 4, 2003